I.—FUNCTIONS OF SPIRAL GEARS.

Gear	L	14.780	13.6077	12.6002	11.7246	10.9560	10.2757	9.6688	9.1238	8.6315	8.1841	7.7757	7.4011	7.0561	6.7372
	F	1.07	1.08	1.09	1.11	1.12	1.14	1.16	1.18	1.20	1.23	1.25	1.28	1.31	1.34
	U	1.0223	1.0263	1.0306	1.0353	1.0403	1.0457	1.0515	1.0576	1.0642	1.0711	1.0785	1.0864	1.0946	1.1034
	A	12	13	14	15	16	17	18	19	20	21	22	23	24	25
Speed Ratio		C_t = center distance per tooth of pinion.*													
1 to 10		7.5166	7.3543	7.2199	7.1083	7.0156	6.9385	6.8754	6.8240	6.7830	6.7511	6.7275	6.7115	6.7025	6.6999
1 to 9		7.0054	6.8412	6.7047	6.5907	6.4954	6.4157	6.3497	6.2951	6.2509	6.2155	6.1882	6.1683	6.1552	6.1482
1 to 8		6.4942	6.3280	6.1892	6.0730	5.9753	5.8928	5.8239	5.7663	5.7188	5.6799	5.6490	5.6251	5.6078	5.5965
1 to 7		5.9831	5.8148	5.6739	5.5554	5.4551	5.3700	5.2982	5.2375	5.1867	5.1443	5.1097	5.0819	5.0605	5.0449
1 to 6		5.4719	5.3017	5.1586	5.0377	4.9350	4.8472	4.7725	4.7087	4.6545	4.6087	4.5704	4.5388	4.5132	4.4932
1 to 5		4.9607	4.7885	4.6433	4.5201	4.4148	4.3243	4.2467	4.1799	4.1224	4.0731	4.0311	3.9956	3.9659	3.9415
2 to 9		4.7051	4.5319	4.3857	4.2613	4.1547	4.0629	3.9839	3.9155	3.8564	3.8054	3.7615	3.7240	3.6922	3.6657
1 to 4		4.4495	4.2753	4.1281	4.0024	3.8946	3.8015	3.7210	3.6510	3.5903	3.5376	3.4919	3.4524	3.4186	3.3898
2 to 7		4.1939	4.0187	3.8706	3.7436	3.6346	3.5401	3.4581	3.3866	3.3243	3.2698	3.2222	3.1808	3.1449	3.1140
3 to 10		4.1087	3.9332	3.7845	3.6573	3.5479	3.4529	3.3705	3.2985	3.2356	3.1805	3.1324	3.0903	3.0537	3.0220
1 to 3		3.9388	3.7622	3.6127	3.4848	3.3745	3.2787	3.1953	3.1222	3.0582	3.0020	2.9526	2.9092	2.8713	2.8382
3 to 8		3.7680	3.5911	3.4409	3.3123	3.2011	3.1044	3.0200	2.9460	2.8809	2.8234	2.7728	2.7282	2.6888	2.6543
2 to 5		3.6828	3.5056	3.3551	3.2260	3.1144	3.0173	2.9324	2.8579	2.7922	2.7342	2.6830	2.6376	2.5976	2.5623
3 to 7		3.5976	3.4201	3.2692	3.1397	3.0277	2.9301	2.8448	2.7697	2.7035	2.6449	2.5931	2.5471	2.5064	2.4707
4 to 9		3.5550	3.3773	3.2262	3.0966	2.9844	2.8866	2.8010	2.7256	2.6592	2.6003	2.5481	2.5018	2.4608	2.4244
1 to 2		3.4272	3.2490	3.0974	2.9672	2.8543	2.7558	2.6695	2.5934	2.5261	2.4664	2.4133	2.3660	2.3239	2.2865
Pinion	A	78	77	76	75	74	73	72	71	70	69	68	67	66	65
	U	4.8097	4.4454	4.1336	3.8637	3.6280	3.4203	3.2361	3.0715	2.9238	2.7904	2.6695	2.5593	2.4586	2.3662
	F	111.0	87.9	70.6	57.8	47.8	40.0	33.9	28.9	25.0	21.7	19.1	16.8	14.9	13.3
	L	0.6678	0.7253	0.7833	0.8418	0.9008	0.9605	1.0208	1.0817	1.1434	1.2059	1.2693	1.3335	1.3987	1.4649

*Factors C_t do not apply for shafts at other than right angles.

A = angle of tooth helix, *U* = unit diameter per tooth, *F* = cutter factor, *L* = lead of spiral pe… diameter, P_d = diametral pitch, *D* = pitch diameter, *N* = number of teeth (in either gear)… of teeth in pinion, *C* = center distance, C_t = center distance per tooth of pinion (1 diametr…

$\frac{U \times N}{P_d} = D$; $N_a \frac{C_t}{P_d} = C$; $L \times D$ = lead of helix; $F \times N$ = number of teeth for which to select cut…

(Explanatory notes continued in Table II).

Contributed by C. W. Pitman.

II.—FUNCTIONS OF SPIRAL GEARS.

Gear	L	5.6676	5.4414	5.2282	5.0276	4.8376	4.6576	4.4867	4.3240	4.1690	4.0211	3.8795	3.7439	3.6139	3.4891
	F	1.49	1.54	1.59	1.64	1.69	1.75	1.81	1.88	1.96	2.04	2.13	2.23	2.33	2.44
	U	1.1433	1.1547	1.1666	1.1792	1.1924	1.2062	1.2208	1.2361	1.2521	1.2690	1.2868	1.3054	1.3250	1.3456
	A	29	30	31	32	33	34	35	36	37	38	39	40	41	42
Speed Ratio		C_t = center distance per tooth of pinion.*													
1 to 10		6.7481	6.7738	6.8040	6.8395	6.8799	6.9252	6.9755	7.0311	7.0916	7.1573	7.2283	7.3050	7.3872	7.4755
1 to 9		6.1764	6.1964	6.2207	6.2499	6.2837	6.3221	6.3651	6.4131	6.4655	6.5228	6.5849	6.6522	6.7247	6.8027
1 to 8		5.6048	5.6190	5.6373	5.6603	5.6875	5.7190	5.7547	5.7950	5.8394	5.8882	5.9415	5.9995	6.0622	6.1298
1 to 7		5.0331	5.0416	5.0540	5.0707	5.0914	5.1159	5.1444	5.1770	5.2133	5.2537	5.2981	5.3468	5.3997	5.4570
1 to 6		4.4614	4.4643	4.4707	4.4811	4.4952	4.5128	4.5340	4.5589	4.5873	5.6192	5.6548	5.6941	5.7372	5.7842
1 to 5		3.8897	3.8869	3.8874	3.8915	3.8990	3.9097	3.9236	3.9409	3.9612	3.9847	4.0114	4.0414	4.0747	4.1114
2 to 9		3.6039	3.5982	3.5958	3.5967	3.6009	3.6081	3.6184	3.6319	3.6482	3.6675	3.6897	3.7151	3.7434	3.7750
1 to 4		3.3181	3.3095	3.3041	3.3019	3.3028	3.3066	3.3132	3.3228	3.3351	3.3502	3.3680	3.3887	3.4121	3.4385
2 to 7		3.0322	3.0208	3.0124	3.0071	3.0047	3.0050	3.0081	3.0138	3.0221	3.0330	3.0463	3.0624	3.0809	3.1022
3 to 10		2.9370	2.9246	2.9152	2.9089	2.9054	2.9045	2.9063	2.9108	2.9177	2.9272	2.9391	2.9536	2.9705	2.9900
1 to 3		2.7464	2.7321	2.7208	2.7123	2.7066	2.7035	2.7029	2.7048	2.7090	2.7157	2.7246	2.7360	2.7496	2.7657
3 to 8		2.5558	2.5397	2.5263	2.5158	2.5079	2.5024	2.4994	2.4988	2.5004	2.5042	2.5102	2.5184	2.5288	2.5415
2 to 5		2.4606	2.4435	2.4291	2.4176	2.4085	2.4019	2.3977	2.3958	2.3960	2.3985	2.4030	2.4097	2.4184	2.4293
3 to 7		2.3653	2.3472	2.3319	2.3193	2.3092	2.3014	2.2959	2.2928	2.2917	2.2927	2.2957	2.3009	2.3080	2.3172
4 to 9		2.3176	2.2991	2.2833	2.2702	2.2595	2.2512	2.2451	2.2413	2.2395	2.2398	2.2421	2.2465	2.2528	2.2611
1 to 2		2.1747	2.1548	2.1374	2.1227	2.1104	2.1004	2.0925	2.0868	2.0830	2.0812	2.0813	2.0833	2.0871	2.0929
Pinion	A	61	60	59	58	57	56	55	54	53	52	51	50	49	48
	U	2.0627	2.0000	1.9416	1.8871	1.8361	1.7883	1.7434	1.7013	1.6616	1.6243	1.5890	1.5557	1.5242	1.4945
	F	8.79	8.00	7.31	6.72	6.18	5.72	5.30	4.93	4.59	4.29	4.01	3.77	3.54	3.34
	L	1.7414	1.8138	1.8877	1.9631	2.0402	2.1190	2.1997	2.2825	2.3673	2.4545	2.5440	2.6361	2.7302	2.8287

*Factors C_t do not apply for shafts at other than right angles.

Example of use of tables:- Required number of teeth, diameters, and center distance for a pair of gears; … 60 degrees; of gear, 30 degrees; speed ratio 2 to 5; 6 diametral pitch. From table, C_t = 2.4435, and by formu… for the moment the number of teeth we have $\frac{2.4435}{6}$ = 0.40725. Assume a required center distance of approxi… N_a = 12; then 0.40725 x 12 = 4.887 = C; 12 x $\frac{5}{2}$ = 30 = teeth in gear. $\frac{U \times N_a}{P_d} = \frac{2 \times 12}{6}$ = 4 inches = pitch diameter o… 4 = 7.256 = lead of spiral of pinion. F x N = 8 x 12 = 96 = number of teeth for which cutter should b… formulas are used for finding the pitch diameter, lead and cutter for gear. (Explanatory notes …

Contributed by C. W. Pitman.

Supplement to MACHINERY, December, 1908.

Tables for the Article in this number entitled "Constants for Calculating Helical Gears."

-EARS.

.7757	7.4011	7.0561	6.7372	6.4412	6.1657	5.9085
1.25	1.28	1.31	1.34	1.37	1.41	1.45
0785	1.0864	1.0946	1.1034	1.1126	1.1223	1.1326
22	23	24	25	26	27	28
ion.*						
6.7275	6.7115	6.7025	6.6999	6.7036	6.7130	6.7278
6.1882	6.1683	6.1552	6.1482	6.1473	6.1518	6.1616
5.6490	5.6251	5.6078	5.5965	5.5910	5.5907	5.5953
5.0097	5.0819	5.0605	5.0449	5.0347	5.0295	5.0290
4.5704	4.5388	4.5132	4.4932	4.4784	4.4683	4.4627
4.0311	3.9956	3.9659	3.9415	3.9221	3.9072	3.8964
3.7615	3.7240	3.6922	3.6657	3.6440	3.6266	3.6133
3.4919	3.4524	3.4186	3.3898	3.3658	3.3460	3.3302
3.222	3.1808	3.1449	3.1140	3.0877	3.0654	3.0470
2.9324	3.0903	3.0537	3.0220	2.9949	2.9719	2.9526
2.8526	2.9092	2.8713	2.8382	2.8095	2.7849	2.7639
2.7728	2.7282	2.6888	2.6543	2.6241	2.5978	2.5751
2.6830	2.6378	2.5976	2.5623	2.5314	2.5043	2.4807
2.5931	2.5471	2.5064	2.4707	2.4387	2.4108	2.3864
2.5481	2.5018	2.4608	2.4244	2.3923	2.3640	2.3392
2.4133	2.3660	2.3239	2.2865	2.2532	2.2237	2.1976
68	67	66	65	64	63	62
2.6095	2.5593	2.4586	2.3662	2.2812	2.2027	2.1300
19.1	16.8	14.9	13.3	11.9	10.7	9.71
1.2693	1.3335	1.3987	1.4649	1.5322	1.6007	1.6704

for, L = lead of spiral per inch pitch
f teeth (in either gear), N_a = number
th of pinion (1 diametral pitch).
for which to select cutter.
le II).

Gear	L	14.780	13.6077	12.6002	11.724		
	F	1.07	1.08	1.09	1.11		
	U	1.0223	1.0263	1.0306	1.0353		
	A	12	13	14	15		
Speed Ratio							
5 to 9		3.3249	3.1465	2.9943	2.863		
4 to 7		3.2994	3.1207	2.9686	2.837		
3 to 5		3.2568	3.0779	2.9256	2.794		
5 to 8		3.2237	3.0437	2.8912	2.760		
2 to 3		3.1713	2.9924	2.8397	2.708		
7 to 10		3.1422	2.9558	2.8028	2.671		
5 to 7		3.1205	2.9411	2.7882	2.656		
3 to 4		3.0864	2.9069	2.7539	2.622		
7 to 9		3.0621	2.8825	2.7293	2.597		
4 to 5		3.0438	2.8641	2.7109	2.578		
5 to 6		3.0183	2.8385	2.6836	2.553		
6 to 7		3.0013	2.8214	2.6680	2.535		
7 to 8		2.9891	2.8091	2.6557	2.523		
8 to 9		2.9799	2.8000	2.6465	2.514		
9 to 10		2.9728	2.7929	2.6393	2.507		
1 to 1		2.9160	2.7358	2.5821	2.449		
Pinion	A	78	77	76	75		
	U	4.8097	4.4454	4.1336	3.863		
	F	111.0	87.9	70.6	57.8		
	L	0.6678	0.7253	0.7833	0.8418		

* Factors C_t do not apply for
While factors C_t do not app
Example: Shaft angle 65
angle; gear, 32 teeth, 35 deg
4.8832 inches, diameter of

Contributed by C. W. Pitman.

GEARS.

3.8795	3.7439	3.6139	3.4891	3.3689	3.2532	3.1416
2.13	2.23	2.33	2.44	2.56	2.69	2.83
1.2868	1.3054	1.3250	1.3456	1.3673	1.3902	1.4142
39	40	41	42	43	44	45
*						
7.2283	7.3050	7.3872	7.4755	7.5699	7.6706	7.7782
6.5849	6.6522	6.7247	6.8027	6.8862	6.9755	7.0711
5.9415	5.9995	6.0622	6.1298	6.2025	6.2805	6.3640
5.2981	5.3468	5.3997	5.4570	5.5189	5.5854	5.6569
4.6548	4.6941	4.7372	4.7842	4.8352	4.8903	4.9497
4.0114	4.0414	4.0747	4.1114	4.1515	4.1952	4.2426
3.6897	3.7151	3.7434	3.7750	3.8097	3.8477	3.8891
3.3680	3.3887	3.4121	3.4385	3.4678	3.5001	3.5355
3.0463	3.0624	3.0809	3.1022	3.1260	3.1526	3.1820
2.9391	2.9539	2.9705	2.9900	3.0121	3.0368	3.0641
2.7246	2.7360	2.7496	2.7657	2.7842	2.8051	2.8284
2.5102	2.5184	2.5288	2.5415	2.5563	2.5734	2.5927
2.4030	2.4097	2.4184	2.4293	2.4424	2.4575	2.4749
2.2957	2.3009	2.3080	2.3172	2.3284	2.3417	2.3570
2.2421	2.2465	2.2528	2.2611	2.2714	2.2838	2.2981
2.0813	2.0833	2.0871	2.0929	2.1005	2.1100	2.1213
51	50	49	48	47	46	45
1.5890	1.5557	1.5242	1.4945	1.4663	1.4396	1.4142
4.01	3.77	3.54	3.34	3.15	2.98	2.83
2.5440	2.6361	2.7302	2.8287	2.9296	3.0338	3.1416

distance for a pair of gears; helix angle of pinion,
le, $C_t = 2.4435$, and by formula $Na \frac{C_t}{P_d}$, disregarding
center distance of approximately 5 inches; make
4 inches = pitch diameter of pinion. $L \times D = 1.184 \times$
for which cutter should be selected. The same
ear. (Explanatory notes continued in Table III).

Gear	L	5.6676	5.4414	5.2282	5.027		
	F	1.49	1.54	1.59	1.64		
	U	1.1433	1.1547	1.1666	1.1792		
	A	29	30	31	32		
Speed Ratio							
5 to 9		2.0604	2.0393	2.0208	2.004		
4 to 7		2.0318	2.0104	1.9916	1.975		
3 to 5		1.9842	1.9623	1.9430	1.926		
5 to 8		1.9461	1.9238	1.9041	1.886		
2 to 3		1.8889	1.8661	1.8458	1.828		
7 to 10		1.8481	1.8249	1.8041	1.785		
5 to 7		1.8317	1.8084	1.7875	1.769		
3 to 4		1.7936	1.7699	1.7486	1.729		
7 to 9		1.7664	1.7424	1.7208	1.701		
4 to 5		1.7460	1.7217	1.6999	1.680		
5 to 6		1.7174	1.6929	1.6708	1.651		
6 to 7		1.6983	1.6736	1.6514	1.631		
7 to 8		1.6847	1.6599	1.6375	1.617		
8 to 9		1.6745	1.6496	1.6271	1.606		
9 to 10		1.6666	1.6416	1.6190	1.598		
1 to 1		1.6031	1.5774	1.5541	1.533		
Pinion	A	61	60	59	58		
	U	2.0627	2.0000	1.9416	1.887		
	F	8.79	8.00	7.31	6.72		
	L	1.7414	1.8138	1.8877	1.963		

* Factors C_t do not apply
Example: Parallel shaft
14 and 70 teeth for pinion
pinion; $\frac{1.0353 \times 70}{8} = 9.059$

Contributed by C. W. Pitman.

III.—FUNCTIONS OF SPIRAL GEARS.

12.8002	11.7246	10.9560	10.2757	9.6688	9.1238	8.6315	8.1841	7.7757	7.4011	7.0561	6.7372	6.4412	6.1657	5.9085
1.09	1.11	1.12	7.14	1.16	1.18	1.20	1.23	1.25	1.28	1.31	1.34	1.37	1.41	1.45
1.0306	1.0353	1.0403	1.0457	1.0515	1.0576	1.0642	1.0711	1.0785	1.0864	1.0946	1.1034	1.1126	1.1223	1.1326
14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
C_t = center distance per tooth of pinion. *														
2.9943	2.8636	2.7503	2.6513	2.5644	2.4877	2.4197	2.3593	2.3055	2.2574	2.2145	2.1762	2.1420	2.1115	2.0843
2.9686	2.8372	2.7243	2.6251	2.5381	2.4612	2.3931	2.3325	2.2785	2.2302	2.1871	2.1486	2.1142	2.0834	2.0560
2.9256	2.7946	2.6810	2.5816	2.4943	2.4171	2.3488	2.2879	2.2336	2.1850	2.1415	2.1026	2.0678	2.0367	2.0088
2.8912	2.7601	2.6463	2.5467	2.4593	2.3819	2.3133	2.2522	2.1976	2.1488	2.1050	2.0658	2.0307	1.9992	1.9711
2.8397	2.7083	2.5943	2.4944	2.4067	2.3290	2.2601	2.1986	2.1437	2.0945	2.0502	2.0107	1.9751	1.9431	1.9145
2.8028	2.6713	2.5571	2.4571	2.3691	2.2912	2.2221	2.1603	2.1052	2.0556	2.0112	1.9712	1.9353	1.9030	1.8740
2.7882	2.6566	2.5422	2.4421	2.3541	2.2761	2.2069	2.1450	2.0898	2.0401	1.9956	1.9555	1.9195	1.8870	1.8578
2.7539	2.6221	2.5076	2.4073	2.3190	2.2409	2.1714	2.1093	2.0538	2.0039	1.9591	1.9187	1.8824	1.8496	1.8201
2.7293	2.5974	2.4828	2.3824	2.2940	2.2157	2.1461	2.0838	2.0281	1.9781	1.9330	1.8924	1.8559	1.8229	1.7931
2.7109	2.5789	2.4642	2.3637	2.2752	2.1968	2.1271	2.0647	2.0089	1.9587	1.9135	1.8727	1.8360	1.8028	1.7729
2.6836	2.5532	2.4382	2.3376	2.2490	2.1704	2.1005	2.0379	1.9819	1.9315	1.8861	1.8451	1.8082	1.7748	1.7446
2.6680	2.5358	2.4209	2.3201	2.2314	2.1527	2.0827	2.0201	1.9639	1.9134	1.8679	1.8268	1.7897	1.7561	1.7257
2.6557	2.5235	2.4085	2.3077	2.2189	2.1401	2.0701	2.0073	1.9511	1.9004	1.8548	1.8136	1.7764	1.7427	1.7122
2.6465	2.5142	2.3992	2.2984	2.2095	2.1307	2.0605	1.9978	1.9415	1.8908	1.8451	1.8038	1.7665	1.7327	1.7021
2.6393	2.5070	2.3920	2.2911	2.2022	2.1234	2.0532	1.9903	1.9340	1.8832	1.8375	1.7961	1.7587	1.7249	1.6942
2.5821	2.4495	2.3342	2.2330	2.1438	2.0646	1.9940	1.9308	1.8740	1.8229	1.7766	1.7348	1.6969	1.6625	1.6313
76	75	74	73	72	71	70	69	68	67	66	65	64	63	62
4.1336	3.8637	3.6280	3.4203	3.2361	3.0715	2.9238	2.7904	2.6695	2.5593	2.4586	2.3662	2.2812	2.2027	2.1300
70.6	57.8	47.8	40.0	33.9	28.9	25.0	21.7	19.1	16.8	14.9	13.3	11.9	10.7	9.71
0.7833	0.8418	0.9008	0.9605	1.0208	1.0817	1.1434	1.2059	1.2693	1.3335	1.3987	1.4649	1.5322	1.6007	1.6704

not apply for shafts at other than right angles.

• do not apply for shafts at other then right angles, factors U, F and L are universal.

t angle 65 degrees; speed ratio 1 to 4; 8 pitch. Assume pinion, 8 teeth, 30 degree helix eeth, 35 degree helix angle. $\frac{U \times N_a}{P_d} = \frac{1.1547 \times 8}{8} = 1.1547$ inch, diameter of pinion; $\frac{1.2208 \times 32}{8}$ = diameter of gear; $C = \frac{1.1547 + 4.8832}{2} = 3.0189$ inches.

(Explanatory notes continued in Table IV).

man.

IV.—FUNCTIONS OF SPIRAL GEARS.

5.2282	5.0276	4.8376	4.6576	4.4867	4.3240	4.1690	4.0211	3.8795	3.7439	3.6139	3.4891	3.3689	3.2532	3.1416
1.59	1.64	1.69	1.75	1.81	1.88	1.96	2.04	2.13	2.23	2.33	2.44	2.56	2.69	2.83
1.1666	1.1792	1.1924	1.2062	1.2208	1.2361	1.2521	1.2690	1.2868	1.3054	1.3250	1.3456	1.3673	1.3902	1.4142
31	32	33	34	35	36	37	38	39	40	41	42	43	44	45
	C_t = center distance per tooth of pinion. *													
2.0208	2.0048	1.9912	1.9798	1.9704	1.9632	1.9578	1.9543	1.9526	1.9528	1.9546	1.9584	1.9638	1.9710	1.9799
1.9916	1.9754	1.9614	1.9496	1.9399	1.9322	1.9265	1.9226	1.9204	1.9201	1.9215	1.9247	1.9296	1.9362	1.9446
1.9430	1.9262	1.9117	1.8993	1.8890	1.8807	1.8743	1.8697	1.8668	1.8657	1.8662	1.8687	1.8726	1.8783	1.8856
1.9041	1.8869	1.8720	1.8591	1.8483	1.8396	1.8326	1.8274	1.8239	1.8222	1.8221	1.8238	1.8271	1.8320	1.8385
1.8458	1.8280	1.8124	1.7988	1.7873	1.7778	1.7699	1.7639	1.7596	1.7569	1.7559	1.7565	1.7587	1.7625	1.7678
1.8041	1.7859	1.7698	1.7557	1.7437	1.7336	1.7252	1.7186	1.7136	1.7103	1.7086	1.7085	1.7099	1.7128	1.7173
1.7875	1.7690	1.7527	1.7385	1.7263	1.7159	1.7073	1.7005	1.6953	1.6917	1.6896	1.6892	1.6903	1.6929	1.6971
1.7486	1.7297	1.7130	1.6983	1.6856	1.6747	1.6656	1.6582	1.6524	1.6482	1.6455	1.6444	1.6447	1.6466	1.6499
1.7208	1.7016	1.6846	1.6696	1.6565	1.6453	1.6358	1.6280	1.6217	1.6171	1.6139	1.6123	1.6122	1.6135	1.6163
1.6999	1.6806	1.6633	1.6481	1.6347	1.6232	1.6134	1.6053	1.5987	1.5938	1.5903	1.5883	1.5878	1.5887	1.5910
1.6708	1.6511	1.6335	1.6179	1.6042	1.5923	1.5821	1.5736	1.5666	1.5611	1.5571	1.5547	1.5536	1.5539	1.5556
1.6514	1.6314	1.6136	1.5978	1.5838	1.5717	1.5612	1.5524	1.5451	1.5394	1.5351	1.5322	1.5308	1.5308	1.5321
1.6375	1.6174	1.5994	1.5834	1.5693	1.5570	1.5463	1.5373	1.5298	1.5238	1.5193	1.5162	1.5145	1.5142	1.5153
1.6271	1.6069	1.5888	1.5727	1.5584	1.5460	1.5352	1.5260	1.5183	1.5122	1.5075	1.5042	1.5023	1.5018	1.5026
1.6190	1.5987	1.5805	1.5643	1.5499	1.5374	1.5265	1.5172	1.5094	1.5031	1.4983	1.4949	1.4928	1.4921	1.4928
1.5541	1.5332	1.5143	1.4973	1.4821	1.4687	1.4569	1.4467	1.4379	1.4306	1.4246	1.4201	1.4168	1.4149	1.4142
59	58	57	56	55	54	53	52	51	50	49	48	47	46	45
1.9416	1.8871	1.8361	1.7883	1.7434	1.7013	1.6616	1.6243	1.5890	1.5557	1.5242	1.4945	1.4663	1.4396	1.4142
7.31	6.72	6.18	5.72	5.30	4.93	4.59	4.29	4.01	3.77	3.54	3.34	3.15	2.98	2.83
1.8877	1.9631	2.0402	2.1190	2.1997	2.2825	2.3673	2.4545	2.5440	2.6361	2.7302	2.8287	2.9296	3.0338	3.1416

not apply for shafts at other than right angles.

rallel shafts, speed ratio 1 to 5, helix angle 15 degrees; 8 diametral pitch. Assume for pinion and gear, respectively. $\frac{U \times N_a}{P_d} = D$; $\frac{1.0353 \times 14}{8} = 1.812$ inch, diameter of $\frac{1.2208 \times 70}{8} = 9.059$ inches, diameter of gear; $C = \frac{1.812 + 9.059}{2} = 5.436$ inches.

man.